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09/699,019	10/27/2000	Ahmadreza Rofougaran	15258US05	5832

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EXAMINER	
MILORD, MARCEAU	

ART UNIT	PAPER NUMBER
2618	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/699,019	ROFOUGARAN, AHMADREZA	
	Examiner	Art Unit	
	Marceau Milord	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 August 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-66* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-25 and 31-53* is/are allowed.

6)☒ Claim(s) *26-30 and 54-66* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 26-30, 54-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coppola (US Patent No 6020783) in view of Hickernell (US Patent No 6201457 B1).

Regarding claims 54-57, Coppola discloses a circuit (fig. 1 and fig. 3) comprising: mixing means for mixing two signals and outputting a mixed signal and an inverted mixed signal (col. 2, line 61- col. 3, line 9; col. 3, lines 18-44; col. 4, lines 42-52); and filtering means for notching a particular frequency of the mixed signal; and a means for generating a zero at the particular frequency (fig. 3; col. 4, lines 27-67; col. 6, lines 31-65).

However, Coppola does not specifically disclose that the first and second filters are polyphase filters.

On the other hand, Hickernell, from the same field of endeavor, discloses a notch filter that augments the stop-band rejection of an associated cascaded surface acoustic wave ladder

filter. The notch filter also provides a pole at a desired frequency or pass band such that losses due to the notch filter at the desired pass band are minimized. Hickernell shows in figure 9, a filter and duplexer that allow a transmitter and receiver operating in different frequency bands to couple to a common port while remaining isolated from each other. The filter is coupled to an amplifier. An output of the amplifier is transmitted to a filter. The filter transmits a signal to a mixer where the signal from filter is combined in the mixer with another signal from a local oscillator coupled via a filter (figs. 3-6; col. 5, lines 25-58; col. 6, lines 8-25;col. 7, lines 21-50). Hickernell discloses the features of a notching means for notching a particular frequency of the input signal as a function of the phases. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Hickernell to the system of Coppola in order to provide a notch filter configuration provides a zero at an undesired frequency and a pole at a desired frequency.

Regarding claim 58, Coppola as modified discloses a circuit (fig. 1and fig. 3) further comprising a third filtering means for attenuating frequencies above a third frequency of the mixed signal, the third frequency being higher than the particular and second frequencies (fig. 3; col. 4, lines 27-67; col. 6, lines 31-65).

Regarding claim 59, Coppola discloses a circuit (fig. 1), comprising: first filtering means (14 of fig. 1) for notching a first frequency of a signal using a first polyphase structure (col. 2, line 61- col. 3, line 9; col. 3, lines 18-44; col. 4, lines 42-52) and second filtering means of the signal using a second filter structure (fig. 3; col. 4, lines 27-67; col. 6, lines 31-65; col. 7, line 26-col. 8, line 13).

However, Coppola does not specifically disclose that the first and second filters are polyphase filters.

On the other hand, Hickernell, from the same field of endeavor, discloses a notch filter that augments the stop-band rejection of an associated cascaded surface acoustic wave ladder filter. The notch filter also provides a pole at a desired frequency or pass band such that losses due to the notch filter at the desired pass band are minimized. Hickernell shows in figure 9, a filter and duplexer that allow a transmitter and receiver operating in different frequency bands to couple to a common port while remaining isolated from each other. The filter is coupled to an amplifier. An output of the amplifier is transmitted to a filter. The filter transmits a signal to a mixer where the signal from filter is combined in the mixer with another signal from a local oscillator coupled via a filter (figs. 3-6; col. 5, lines 25-58; col. 6, lines 8-25;col. 7, lines 21-50). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Hickernell to the system of Coppola in order to provide a notch filter configuration provides a zero at an undesired frequency and a pole at a desired frequency.

Regarding claim 60, Coppola as modified discloses a circuit (fig. 1), wherein the first polyphase structure comprises means for generating a first zero at the first frequency, and the second filter structure comprises means for generating a second zero at the second frequency (fig. 3; col. 4, lines 27-67; col. 6, lines 31-65).

Regarding claim 61, Coppola as modified discloses a circuit (fig. 1), further comprising a third filtering means for attenuating frequencies above a third frequency of the signal, the third frequency being higher than the second frequency (col. 3, line 40- col. 4, line 54).

Regarding claim 20, Coppola discloses a notch filter (fig. 1and fig. 3), comprising: generating means (15 of fig. 1) for generating an output signal comprising a plurality of phases of an input signal (22 of fig. 1; col. 2, line 61- col. 3, line 9; col. 3, lines 18-44; col. 4, lines 42-52); fig. 3; col. 4, lines 27-67; col. 6, lines 31-65).

However, Coppola does not specifically disclose that the features of notching means for notching a particular frequency of the input signal as a function of the phases.

On the other hand, Hickernell, from the same field of endeavor, discloses a notch filter that augments the stop-band rejection of an associated cascaded surface acoustic wave ladder filter. The notch filter also provides a pole at a desired frequency or pass band such that losses due to the notch filter at the desired pass band are minimized. Hickernell shows in figure 9, a filter and duplexer that allow a transmitter and receiver operating in different frequency bands to couple to a common port while remaining isolated from each other. The filter is coupled to an amplifier. An output of the amplifier is transmitted to a filter. The filter transmits a signal to a mixer where the signal from filter is combined in the mixer with another signal from a local oscillator coupled via a filter (figs. 3-6; col. 5, lines 25-58; col. 6, lines 8-25;col. 7, lines 21-50). Hickernell discloses the features of a notching means for notching a particular frequency of the input signal as a function of the phases. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Hickernell to the system of Coppola in order to provide a notch filter configuration provides a zero at an undesired frequency and a pole at a desired frequency.

Regarding claim 21, Coppola as modified discloses a notch filter (fig. 1), wherein the input signal comprises a differential signal (22 of fig. 1;col. 2, line 61- col. 3, line 9; col. 3, lines 18-44; col. 4, lines 42-52;col. 7, line 4- col. 8, line 13).); (col. 3, lines 6-32).

Regarding claim 22, Coppola as modified discloses a notch filter (fig. 1), wherein the generating means (15 of fig. 1) further comprises means for generating the output signal with quadrature outputs when the input signal includes the particular frequency (22 of fig. 1; col. 2, line 61- col. 3, line 9; col. 3, lines 18-44; col. 4, lines 42-52; col. 7, line 4- col. 8, line 13).

Regarding claim 23, Coppola as modified discloses a notch filter (fig. 1and fig. 3), wherein the notching means comprising means for rejecting the quadrature signal at the particular frequency (22 of fig. 1;col. 2, line 61- col. 3, line 9; col. 3, lines 18-44; col. 4, lines 42-52;col. 7, line 4- col. 8, line 13).

Regarding claim 24, Coppola as modified discloses a notch filter (fig. 1and fig. 3), wherein the particular frequency is an odd harmonic of the input signal (22 of fig. 1;col. 2, line 61- col. 3, line 9; col. 3, lines 18-44; col. 4, lines 42-52;col. 7, line 4- col. 8, line 13).

Regarding claim 25, Coppola as modified discloses a notch filter (fig. 1and fig. 3), wherein the particular frequency is a third harmonic of the input signal (col. 7, line 4- col. 8, line 13).

Regarding claim 26, Coppola discloses a method of notching a particular frequency of a signal (fig. 1), comprising: generating (16 of fig. 1) an output signal comprising a plurality of phases of an input signal (22 of fig. 1; col. 2, line 61- col. 3, line 9; col. 3, lines 18-44; col. 4, lines 42-52; col. 7, line 4- col. 8, line 13).

However, Coppola does not specifically disclose that the features of notching a particular frequency of the input signal as a function of the phases.

On the other hand, Hickernell, from the same field of endeavor, discloses a notch filter that augments the stop-band rejection of an associated cascaded surface acoustic wave ladder filter. The notch filter also provides a pole at a desired frequency or pass band such that losses due to the notch filter at the desired pass band are minimized. Hickernell shows in figure 9, a filter and duplexer that allow a transmitter and receiver operating in different frequency bands to couple to a common port while remaining isolated from each other. The filter is coupled to an amplifier. An output of the amplifier is transmitted to a filter. The filter transmits a signal to a mixer where the signal from filter is combined in the mixer with another signal from a local oscillator coupled via a filter (figs. 3-6; col. 5, lines 25-58; col. 6, lines 8-25;col. 7, lines 21-50). Hickernell discloses the features of notching a particular frequency of the input signal as a function of the phases. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Hickernell to the system of Coppola in order to provide a notch filter configuration provides a zero at an undesired frequency and a pole at a desired frequency.

Regarding claim 27, Coppola as modified discloses a method of notching a particular frequency of a signal (fig. 1 and fig. 3), wherein the generation of the output signals comprises generating the output signal with quadrature outputs when the input signal includes the particular frequency (col. 7, line 4- col. 8, line 13).

Regarding claim 28, Coppola as modified discloses a method of notching a particular frequency of a signal (fig. 1), wherein the notching of the particular frequency comprises rejecting the quadrature signal at the particular frequency (col. 7, line 4- col. 8, line 13).

Regarding claim 29, Coppola as modified discloses a method of notching a particular frequency of a signal (fig. 1), wherein the particular frequency is an odd harmonic of the input signal (col. 7, line 4- col. 8, line 13).

Regarding claim 30, Coppola as modified discloses a method of notching a particular frequency of a signal (fig. 1), wherein the particular frequency is a third harmonic of the input signal (col. 7, line 4- col. 8, line 13).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 62 -66 are rejected under 35 U.S.C. 102(b) as being anticipated by Hickernell (US Patent No 6201457 B1).

Regarding claims 62, 64-66, Hickernell discloses a method of filtering a signal (fig. 3-6 and fig. 9) comprising notching (notch filter 100) a particular frequency of the signal using a filter structure (figs. 3-6; col. 5, lines 25-58; col. 6, lines 8-25;col. 7, lines 21-50).

Regarding claim 63, Hickernell discloses a method of filtering a signal (fig. 3-6 and fig. 9) wherein the notching of the particular frequency comprises generating a zero at the particular frequency using the polyphase structure (col. 4, lines 38-65;col. 5, lines 25-58; col. 6, lines 8-25).

Allowable Subject Matter

5. Claims 1-25, 31-53 are allowed.

Response to Arguments

6. Applicant's arguments with respect to claims 26- 30, 54-66 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marceau Milord whose telephone number is 571-272-7853. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward F. Urban can be reached on 571-272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Marceau Milord/

Primary Examiner, Art Unit 2618

/M. M./

Primary Examiner, Art Unit 2618